<u>IN THE CLAIMS:</u>

Please cancel Claims 40-45, without prejudice or disclaimer of subject matter.

Please amend Claims 30-32, 34-38 and 46 and add new Claims 47-64, as

indicated below. The following is a complete listing of claims and replaces all prior versions and

listings of claims in the present application:

1-29. (Canceled).

30. (Currently amended) A method for fingerprinting an audio waveform, comprising:

defining a codebook which represents a vector of one or more spectral ~~properties~~

<u>features</u> with <u>one of a plurality of</u> [[a]] code<u>s,</u>

each code corresponding to a bin and representing a portion of [[an]] <u>a predetermined</u>

audio <u>waveform</u> ~~signal~~;

dividing the audio waveform into <u>a plurality of</u> bins,

for [[a]] <u>each</u> bin <u>of the plurality of bins,</u> computing one or more spectral ~~properties~~

<u>features</u> for [[that]] <u>the</u> bin,

wherein the computing comprises:

computing the one or more spectral features for a first group of data points

within the bin;

shifting some number of data points within the bin; and

computing the one or more spectral features for a second group of data points

within the bin; and

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representing the <u>audio</u> waveform with a string of [[hash]] codes from the codebook,

each [[hash]] code corresponding to a segment of the <u>audio</u> waveform and temporally aligned in

the string with the corresponding segment of the <u>audio</u> waveform.

31.   (Currently amended) The method of claim 30, wherein <u>one or more</u> data points in the

first group overlap with <u>one or more</u> data points in the second group.

32.   (Currently amended) The method of claim 30 wherein ~~in representing the waveform, each~~

~~group of data points of the bin is represented by a~~ <u>each</u> code <u>is a hash code</u>~~, and wherein the code~~

~~for the bin may differ for each group of data points~~.

33.   (Previously presented) The method of claim 30 further comprising:

compressing the string of codes from the codebook to form a compressed string, the codes of the

compressed string temporally aligned with the corresponding segment of the waveform.

34.   (Currently amended) A method for creating a signature [[for]] <u>of</u> an audio waveform,

comprising:

        dividing the audio waveform into <u>a plurality of</u> bins;

        for [[a]] <u>the</u> plurality of the bins, selecting a first group of data points within each bin,

and computing one or more spectral ~~properties~~ <u>features</u> for each bin based upon the first group of

points within the <u>plurality of</u> bins ~~of the plurality~~,

and for the plurality of bins, selecting a second group of data points within each bin, and computing one or more spectral ~~properties~~ features for each bin based upon the second set of data points within the bins of the plurality;

referencing a codebook using the one or more spectral properties; and

creating one or more signatures representing the audio waveform with a string of codes from the codebook, each code corresponding to a segment of the audio waveform.

35. (Currently amended) The method of claim 34 wherein each code in the string represents the waveform over a portion of the waveform, and wherein the codes are temporally aligned with the waveform such that the position of a code within the string corresponds to a time period of the waveform.

36. (Currently amended) The method of claim 35, further comprising:

compressing the string such that temporal alignment between the string and the waveform is maintained.

37. (Currently amended) The method of claim 35, further comprising:

comparing a signature of the one or more signatures that initiates at a given time with a representation of an audio segment.

38. (Currently amended) The method of claim 37, further comprising:

defining a codebook which represents a vector of one or more spectral ~~properties~~ <u>features</u> with a code, prior to referencing said codebook.

39.   (Previously presented) The method of claim 34 wherein one or more signatures is created for each bin.

40-45.   (Canceled)

46.   (Currently amended) A method for creating a signature for an audio waveform, comprising:

dividing the audio waveform into <u>a plurality of</u> bins;

for [[a]] <u>the</u> plurality of the bins, selecting a first group of data points within each bin, and computing one or more spectral properties for each bin based upon the first group of points within the <u>plurality of</u> bins ~~of the plurality~~,

and for the plurality <u>of bins</u>, selecting a second group of data points within each bin, and computing one or more spectral properties for each bin based upon the second set of data points within the <u>plurality of</u> bins ~~of the plurality~~;

referencing a codebook of hash values <u>using the computed one or more spectral properties</u>; and

creating one or more signatures representing the <u>audio</u> waveform with a string of hash values from the codebook, each hash value corresponding to a segment of the waveform.

47.   (New) The method of claim 34, wherein each code is a hash code.

48.   (New) A computer program product comprising a computer-readable memory medium having control logic stored therein for causing a computer to fingerprint an audio waveform, said control logic comprising:

computer readable program code means for causing the computer to define a codebook which represents a vector of one or more spectral features with one of a plurality of codes,

each code corresponding to a bin and representing a portion of a predetermined audio waveform;

computer readable program code means for causing the computer to divide the audio waveform into a plurality of bins;

computer readable program code means for causing the computer to compute one or more spectral features for a first group of data points within each bin of the plurality of bins;

computer readable program code means for causing the computer to shift some number of data points within each bin of the plurality of bins; and

computer readable program code means for causing the computer to compute one or more spectral features for a second group of data points within each bin of the plurality of bins; and

computer readable program code means for causing the computer to represent the audio waveform with a string of codes from the codebook, each code corresponding to a segment

of the audio waveform and temporally aligned in the string with the corresponding segment of the audio waveform.

49.   (New) The computer program product of claim 48, wherein one or more data points in the first group overlap with one or more data points in the second group.

50.   (New) The computer program product of claim 48, wherein each code is a hash code.

51.   (New) The computer program product of claim 48, further comprising:

computer readable program code means for causing the computer to compress the string of codes from the codebook to form a compressed string, the codes of the compressed string temporally aligned with the corresponding segment of the waveform.

52.   (New) An apparatus for fingerprinting an audio waveform, comprising:

means for defining a codebook which represents a vector of one or more spectral features with one of a plurality of codes,

each code corresponding to a bin and representing a portion of a predetermined audio waveform;

means for dividing the audio waveform into a plurality of bins,

means for computing one or more spectral features for a first group of data points within each bin of the plurality of bins;

means for shifting some number of data points within each bin of the plurality of bins; and

means for computing the one or more spectral features for a second group of data points within each bin of the plurality of bins; and

means for representing the audio waveform with a string of codes from the codebook, each code corresponding to a segment of the audio waveform and temporally aligned in the string with the corresponding segment of the audio waveform.

53.   (New) A computer program product comprising a computer-readable memory medium having control logic stored therein for causing a computer to create a signature of an audio waveform, said control logic comprising:

computer readable program code means for causing the computer to divide the audio waveform into a plurality of bins;

computer readable program code means for causing the computer to select a first group of data points within each bin;

computer readable program code means for causing the computer to compute one or more spectral features for each bin based upon the first group of points within the plurality of bins;

computer readable program code means for causing the computer to select a second group of data points within each bin;

computer readable program code means for causing the computer to compute one or

more spectral features for each bin based upon the second set of data points within the bins of the plurality;

computer readable program code means for causing the computer to reference a codebook using the one or more spectral features; and

computer readable program code means for causing the computer to create one or more signatures representing the audio waveform with a string of codes from the codebook, each code corresponding to a segment of the audio waveform.

54. (New) The computer program product of claim 53, wherein each code in the string represents the waveform over a portion of the waveform, and wherein the codes are temporally aligned with the waveform such that the position of a code within the string corresponds to a time period of the waveform.

55. (New) The computer program product of claim 54, further comprising:

computer readable program code means for causing the computer to compress the string such that temporal alignment between the string and the waveform is maintained.

56. (New) The computer program product of claim 54, further comprising:

computer readable program code means for causing the computer to compare a signature of the one or more signatures that initiates at a given time with a representation of an audio segment.

57.   (New) The computer program product of claim 56, further comprising:

computer readable program code means for causing the computer to define a

codebook which represents a vector of one or more spectral features with a code, prior to

referencing said codebook.

58.   (New) The computer program product of claim 53, wherein one or more signatures is

created for each bin.

59.   (New) The computer program product of claim 53, wherein each code is a hash code.

60.   (New) An apparatus for creating a signature of an audio waveform, comprising:

means for dividing the audio waveform into a plurality of bins;

means for selecting a first group of data points within each bin;

means for computing one or more spectral features for each bin based upon the first

group of points within the plurality of bins;

means for selecting a second group of data points within each bin;

means for computing one or more spectral features for each bin based upon the second

set of data points within the bins of the plurality;

means for referencing a codebook using the one or more spectral features; and

means for creating one or more signatures representing the audio waveform with a

string of codes from the codebook, each code corresponding to a segment of the audio waveform.

61.　　(New) A method for fingerprinting an audio waveform, comprising:

defining a codebook which represents a vector of one or more spectral features with a corresponding one of a plurality of codes;

dividing the audio waveform into a plurality of bins;

for each bin, computing one or more spectral features for that bin; and

representing the audio waveform with a string of codes from the codebook based on the computed one or more spectral features for each bin.

62.　　(New) An apparatus for fingerprinting an audio waveform, comprising:

a memory operable to store a codebook which represents a vector of one or more spectral features with a corresponding one of a plurality of codes; and

a processor operable to divide the audio waveform into a plurality of bins, compute one or more spectral features for each bin, and represent the audio waveform with a string of codes from the codebook based on the computed one or more spectral features for each bin.

63.　　(New) A computer program product comprising a computer-readable memory medium having control logic stored therein for causing a computer to create a signature of an audio waveform, said control logic comprising:

computer readable program code means for causing the computer to define a codebook which represents a vector of one or more spectral features with a corresponding one of a plurality

of codes;

computer readable program code means for causing the computer to divide the audio waveform into a plurality of bins;

computer readable program code means for causing the computer to compute one or more spectral features for each bin; and

computer readable program code means for causing the computer to represent the audio waveform with a string of codes from the codebook based on the computed one or more spectral features for each bin.

64.   (New) An apparatus for fingerprinting an audio waveform, comprising:

means for defining a codebook which represents a vector of one or more spectral features with a corresponding one of a plurality of codes;

means for dividing the audio waveform into a plurality of bins;

means for computing one or more spectral features for each bin; and

means for representing the audio waveform with a string of codes from the codebook based on the computed one or more spectral features for each bin.